

# Palaeo-environmental characterisation of cold-water corals from the Melilla Mound Field, Alboran Sea

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Cold-water coral (CWC) carbonate mounds have been extensively described along the European continental margin and in the Mediterranean Sea. It has been widely postulated that CWC's respond to changing palaeo-environmental, palaeoclimatic and hydrodynamic conditions. Therefore, CWC's provide unique environmental records for the deep sea. This study focuses on the palaeo-environmental characterisation of 3 gravity cores from a cold-water coral carbonate mound on Brittlestar Ridge I in the Melilla Mound Field at the southern margin of the Alboran Sea.

The cores were recovered within the framework of the EuroFLEETS campaign "The Mediterranean-Atlantic Gateway Code: The Late Pleistocene Carbonate Mound Record" aboard the R/V Marion Dufresne in 2013. They show intervals rich in CWC fragments (mainly *Lophelia pertusa* and *Madrepora oculata*), intervals characterised by bryozoan framework, and a few short layers dominated by shell fragments, all interspersed with layers of siliciclastic material.

Apart from detailed core descriptions, macro-CT-scanning is performed to allow a quantification of the main macrofauna occurrences. The cores are also characterized in terms of qualitative elemental variations of the bulk fractions (XRF-logging), geophysical variations (MSCL-logging), and mineralogy of the matrix sediment (XRD) to decipher the major sedimentological changes. U/Th dating on individual coral fragments and <sup>14</sup>C dating on benthic foraminifera are performed to constrain the palaeoclimatological framework. Variations in CWC abundances as well as transitions from CWC- to bryozoan dominated reef are found to coincide to some extent with palaeo-environmental changes in the Mediterranean intermediate water depths. Especially important changes were probably related to the onset of the African Humid Period at around 14.8 ka and the start of the Holocene at about 11.5 ka.

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